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10/044,040	01/11/2002	Woo-Young Jang	SAM-0289	8031

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Steven M. Mills  
MILLS & ONELLO LLP  
Suite 605  
Eleven Beacon Street  
Boston, MA 02108

EXAMINER

AN, SHAWN S

ART UNIT PAPER NUMBER

2613

DATE MAILED: 08/20/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/044,040

Applicant(s)

JANG, WOO-YOUNG

Examiner

Shawn S An

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-10 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 6-10, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prieto (5,974,181) in view of Martucci et al (6,298,167 B1).

**Regarding claims 1, 3, 9, and 14**, Prieto discloses an apparatus/method for coding an image signal comprising;

a wavelet transform unit (Fig. 2, 212) for wavelet transforming an input image signal;

a vector construct unit (Fig. 3) for constructing vectors using the wavelet transformed result, each vector having a tree structure in a different direction;

an error vector generation unit (Fig. 6, 605) for generating a plurality of error vectors by setting one of the vectors as a basic vector (603) and performing a calculation on each of the vectors as a basic vector and performing a calculation on each of vectors remaining with respect to the basic vector (603);

a first vector Q unit (600) for generating a first codebook (215) for the basic vector, quantizing the basic vector using the first codebook, and outputting the Q results as the index (216) of the first codebook;

a second vector Q unit (606) for generating a second codebook (215) for the error vectors, quantizing the scanned error vectors using the second codebook, and outputting the Q results as the index (216) of the second codebook.

Prieto does not specifically disclose a scan unit for scanning the coefficients of each of the basic vector and error vectors in a different direction, although it would have

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been obvious for the first vector Q unit to generate the first codebook for the basic vector scanned in a scan unit.

Furthermore, Martucci et al discloses a vector wavelet apparatus comprising a scan unit for scanning the coefficients of vectors (col. 11, lines 55-62).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing apparatus/method for coding an image signal as taught by Prieto to incorporate the scanning unit as taught by Martucci et al for an obvious reason of scanning the coefficients of each of the basic vector and error vectors in a different direction so that the first/second vector Q unit generates a first/second codebook for the basic/error vector(s), and quantizing the scanned basic/error vector(s), respectively.

**Regarding claims 2, 7, 10, and 13**, Martucci et al discloses the wavelet transform unit transforming the image signal so that the low frequency sub-band of the image signal is decomposed in a 2-dimensional packet region (col. 2, lines 23-30).

**Regarding claim 6**, the Examiner takes official notice that zigzag scan pattern is well known in the art. Therefore, it would have been obvious to zigzag scan the coefficients of the basic vector and the error vectors in the horizontal and vertical directions, respectively.

**Regarding claim 8**, Martucci et al discloses the wavelet transform (212) transforming the image signal in a spatial region. Furthermore, the Examiner takes official notice that a temporal wavelet transform transforming the image signal such as a number of frames of a video in a time region is well known in the art. Therefore, it would have been obvious to transform the image signal in a time region so as to efficiently transform moving pictures.

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pesquet-Popescu et al (6,519,284 B1). in view of Prieto (5,974,181).

**Regarding claim 15**, Pesquet-Popescu discloses a method for coding an image signal comprising;

wavelet transforming an input 3D moving picture in a time region (abs.);

wavelet transforming in a spatial region (Figs. 2-3 and 8);

constructing vectors each having a 3D tree structure (Fig. 1), using the wavelet transformed result;

setting one among vectors, each having a tree structure as a basic vector (Figs. 5-6);

scanning the vectors according to different methods (col. 6, lines 32-44);

quantizing the scanned vectors (Fig. 8, SCALAR Q);

Pesquet-Popescu does not specifically disclose a plurality of error vectors.

However, Prieto discloses a vector wavelet apparatus comprising a plurality of error vectors (Fig. 6, elements 605, 607).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing apparatus/method for coding an image signal as taught by Pesquet-Popescu to incorporate the error vectors as taught by Prieto so as to scan the coefficients of each of the basic vector and error vectors in a different direction, thereby generating a plurality of codebook for the basic vector and error vector(s), and quantizing the scanned basic vector and error vectors for further enhancing the wavelet transform operation.

#### ***Allowable Subject Matter***

4. Claims 4-5 and 11-12 are objected to as being dependent upon a rejected base claims 1 and 9, respectively, but would be allowable: if either claim 4 or claim 5 is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims; and if either claim 11 or claim 12 is rewritten in independent form including all of the limitations of the base claim 9 and any intervening claims.

Dependent claims 4-5 and 11-12 recite novel features comprising the error vectors being generated by adding/subtracting the horizontal direction vector and the vertical direction vector from the basic vector.

Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn S An whose telephone number is 703-305-0099. The examiner can normally be reached on Flex hours (10).
6. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SSA

Primary Patent Examiner

8/17/04